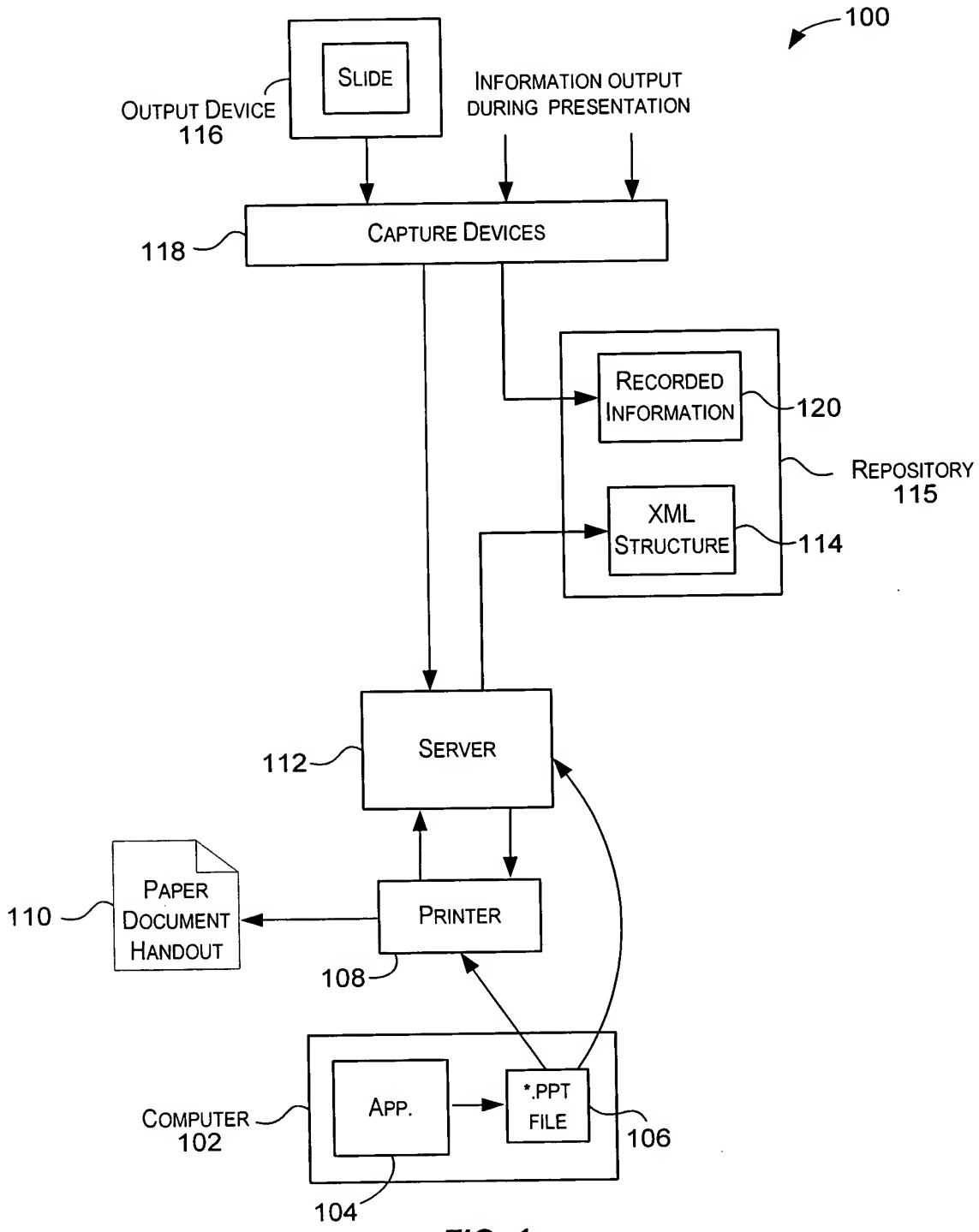
100
SLIDE
OUTPUT DEVICE
116
INFORMATION OUTPUT
DURING PRESENTATION
CAPTURE DEVICES
118
RECORDED
INFORMATION
120
REPOSITORY
115
XML
STRUCTURE
114
SERVER
112
PAPER
DOCUMENT
HANDOUT
110
PRINTER
108
COMPUTER
102
APP.
*.PPT
FILE
106
104

FIG. 1

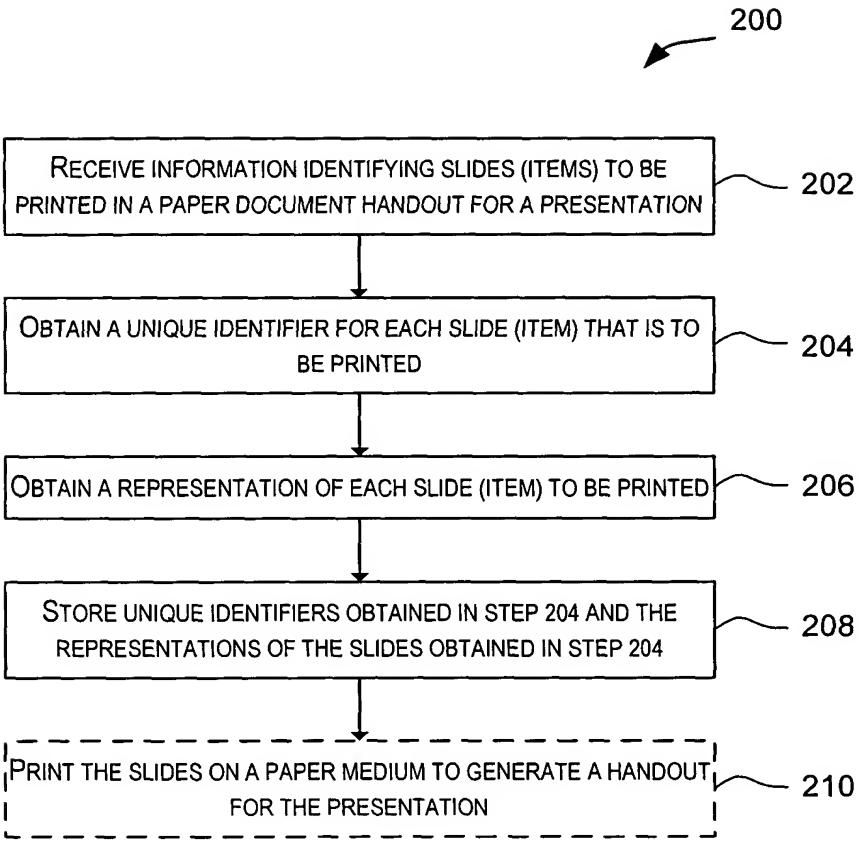
200
RECEIVE INFORMATION IDENTIFYING SLIDES (ITEMS) TO BE PRINTED IN A PAPER DOCUMENT HANDOUT FOR A PRESENTATION
202
OBTAIN A UNIQUE IDENTIFIER FOR EACH SLIDE (ITEM) THAT IS TO BE PRINTED
204
OBTAIN A REPRESENTATION OF EACH SLIDE (ITEM) TO BE PRINTED
206
STORE UNIQUE IDENTIFIERS OBTAINED IN STEP 204 AND THE REPRESENTATIONS OF THE SLIDES OBTAINED IN STEP 204
208
PRINT THE SLIDES ON A PAPER MEDIUM TO GENERATE A HANDOUT FOR THE PRESENTATION
210

FIG. 2

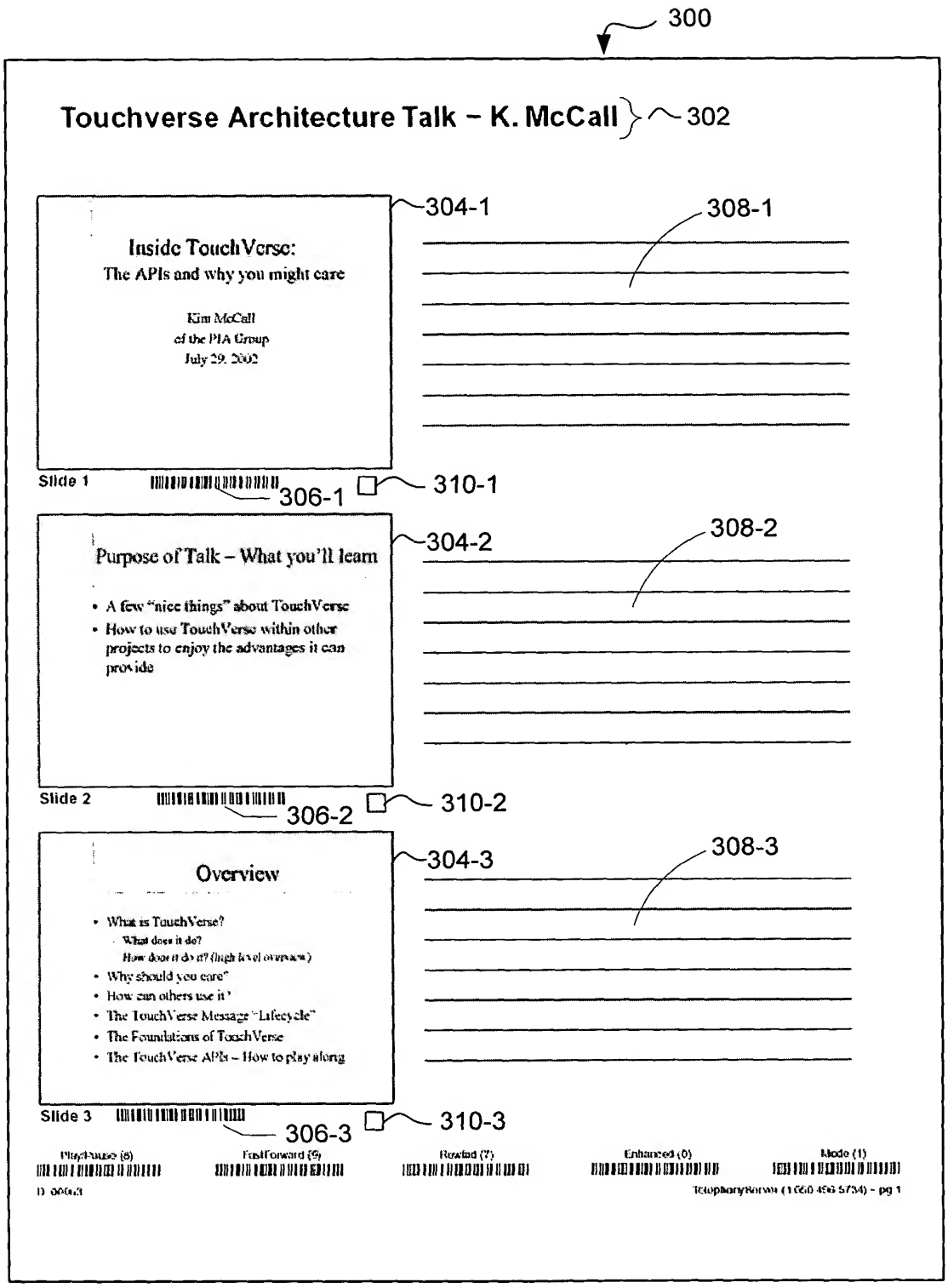
300
Touchverse Architecture Talk – K. McCall
302
Inside TouchVerse:
The APIs and why you might care
Kim McCall
of the PIA Group
July 29, 2002
304-1
308-1
Slide 1
306-1
310-1
Purpose of Talk – What you'll learn
• A few "nice things" about TouchVerse
• How to use TouchVerse within other projects to enjoy the advantages it can provide
304-2
308-2
Slide 2
306-2
310-2
Overview
• What is TouchVerse?
• Why should you care?
• How can others use it?
• The TouchVerse Message "Lifecycle"
• The Foundations of TouchVerse
• The TouchVerse APIs – How to play along
304-3
308-3
Slide 3
306-3
310-3
Play/Pause (8)
FastForward (9)
Rewind (7)
Enhanced (0)
Mode (1)

FIG. 3A

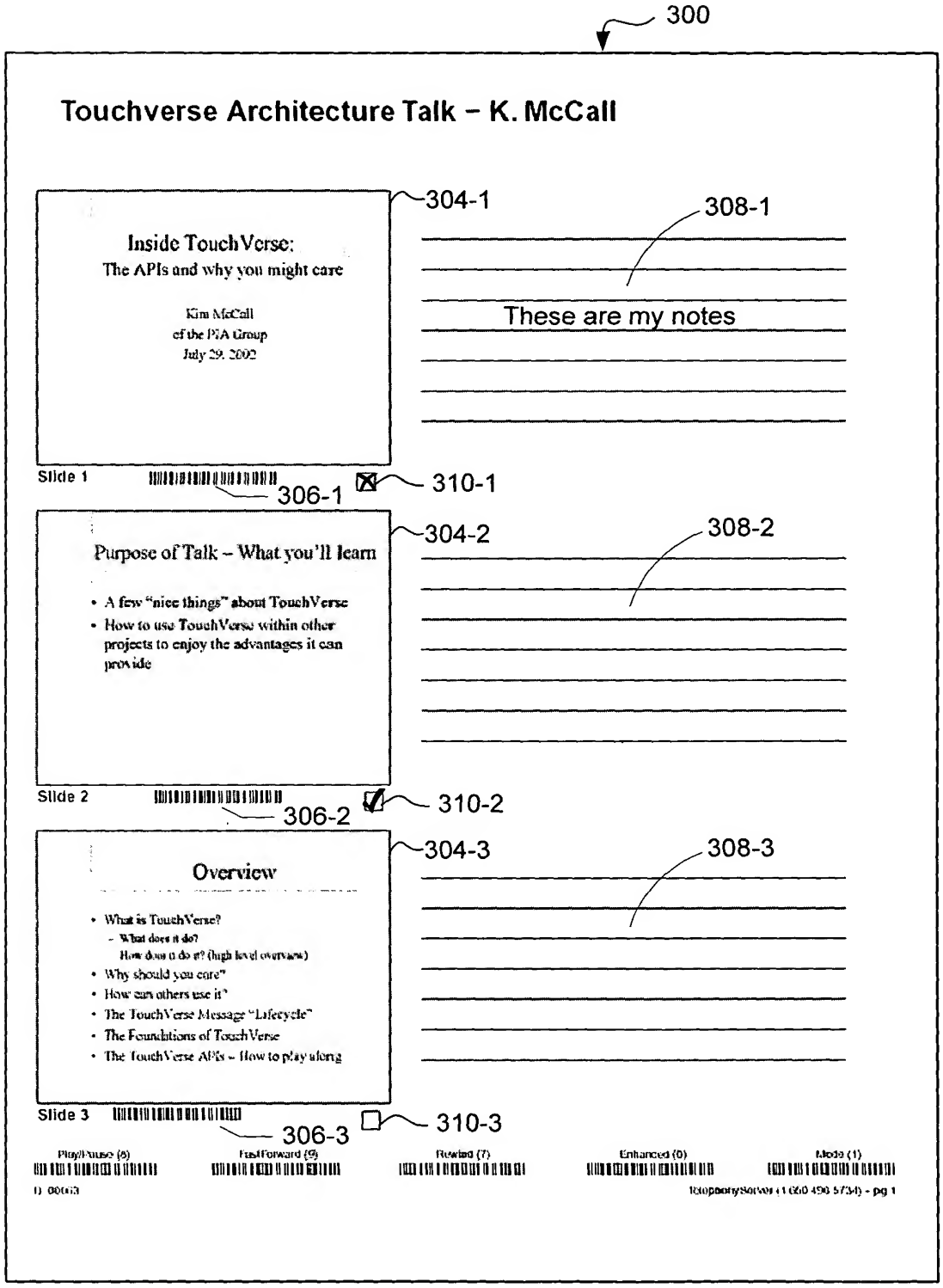
300
Touchverse Architecture Talk – K. McCall
Inside TouchVerse:
The APIs and why you might care
Kim McCall
of the PIA Group
July 29, 2002
304-1
308-1
These are my notes
Slide 1
306-1
310-1
Purpose of Talk – What you'll learn
• A few "nice things" about TouchVerse
• How to use TouchVerse within other projects to enjoy the advantages it can provide
304-2
308-2
Slide 2
306-2
310-2
Overview
• What is TouchVerse?
– What does it do?
How does it do it? (high level overview)
• Why should you care?
• How can others use it?
• The TouchVerse Message "Lifecycle"
• The Foundations of TouchVerse
• The TouchVerse APIs – How to play along
304-3
308-3
Slide 3
306-3
310-3
Play/Pause (5)
FastForward (9)
Rewind (7)
Enhanced (0)
Mode (1)

FIG. 3B

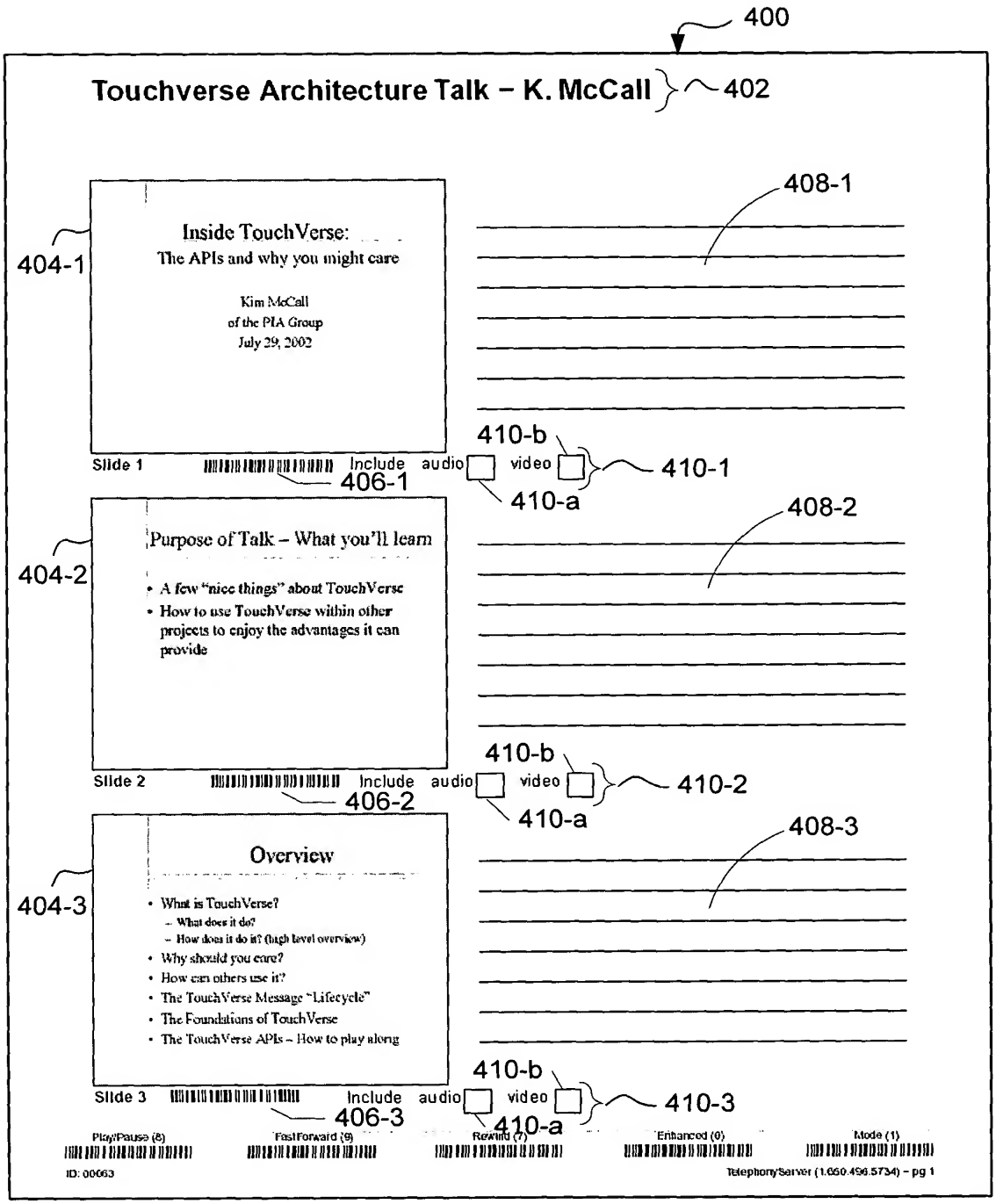
400
Touchverse Architecture Talk – K. McCall
402
Inside TouchVerse:
The APIs and why you might care
Kim McCall
of the PIA Group
July 29, 2002
404-1
408-1
Slide 1
Include audio
video
406-1
410-b
410-a
410-1
Purpose of Talk – What you'll learn
A few "nice things" about TouchVerse
How to use TouchVerse within other projects to enjoy the advantages it can provide
404-2
408-2
Slide 2
Include audio
video
406-2
410-b
410-a
410-2
Overview
What is TouchVerse?
– What does it do?
– How does it do it? (high level overview)
Why should you care?
How can others use it?
The TouchVerse Message "Lifecycle"
The Foundations of TouchVerse
The TouchVerse APIs – How to play along
404-3
408-3
Slide 3
Include audio
video
406-3
410-b
410-a
410-3
Play/Pause (8)
FastForward (9)
Rewind (7)
Enhanced (0)
Mode (1)
ID: 00063
TelephonyServer (1.650.496.5734) – pg 1

FIG. 4A

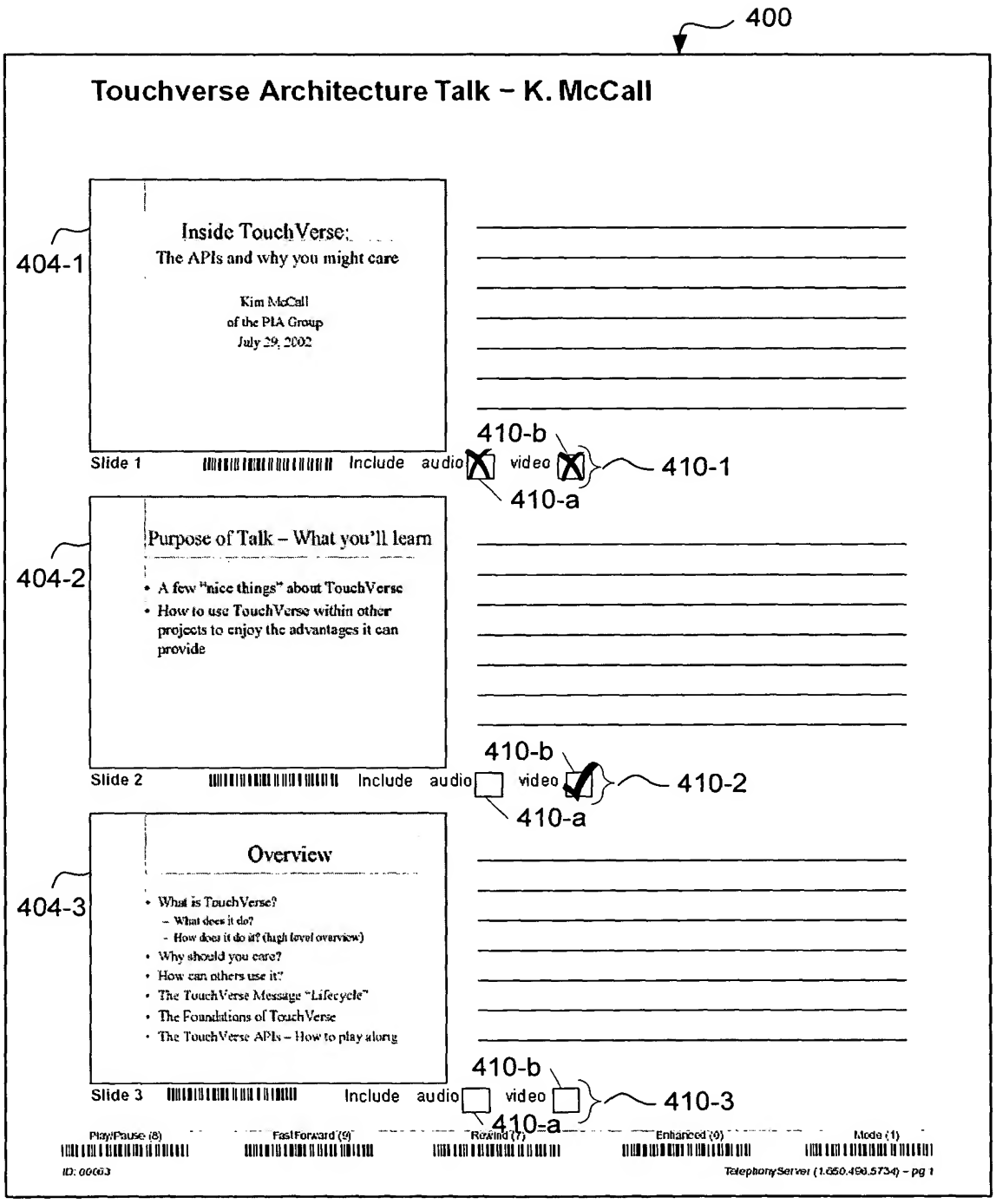
400
Touchverse Architecture Talk – K. McCall
404-1
Inside TouchVerse:
The APIs and why you might care
Kim McCall
of the PIA Group
July 29, 2002
Slide 1
Include audio
video
410-b
410-a
410-1
404-2
Purpose of Talk – What you'll learn
• A few "nice things" about TouchVerse
• How to use TouchVerse within other projects to enjoy the advantages it can provide
Slide 2
Include audio
video
410-b
410-a
410-2
404-3
Overview
• What is TouchVerse?
– What does it do?
– How does it do it? (high level overview)
• Why should you care?
• How can others use it?
• The TouchVerse Message "Lifecycle"
• The Foundations of TouchVerse
• The TouchVerse APIs – How to play along
Slide 3
Include audio
video
410-b
410-a
410-3
Play/Pause (8)
FastForward (9)
Rewind (7)
Enhanced (0)
Mode (1)
ID: 00063
TelephonyServer (1.650.496.5734) – pg 1

FIG. 4B

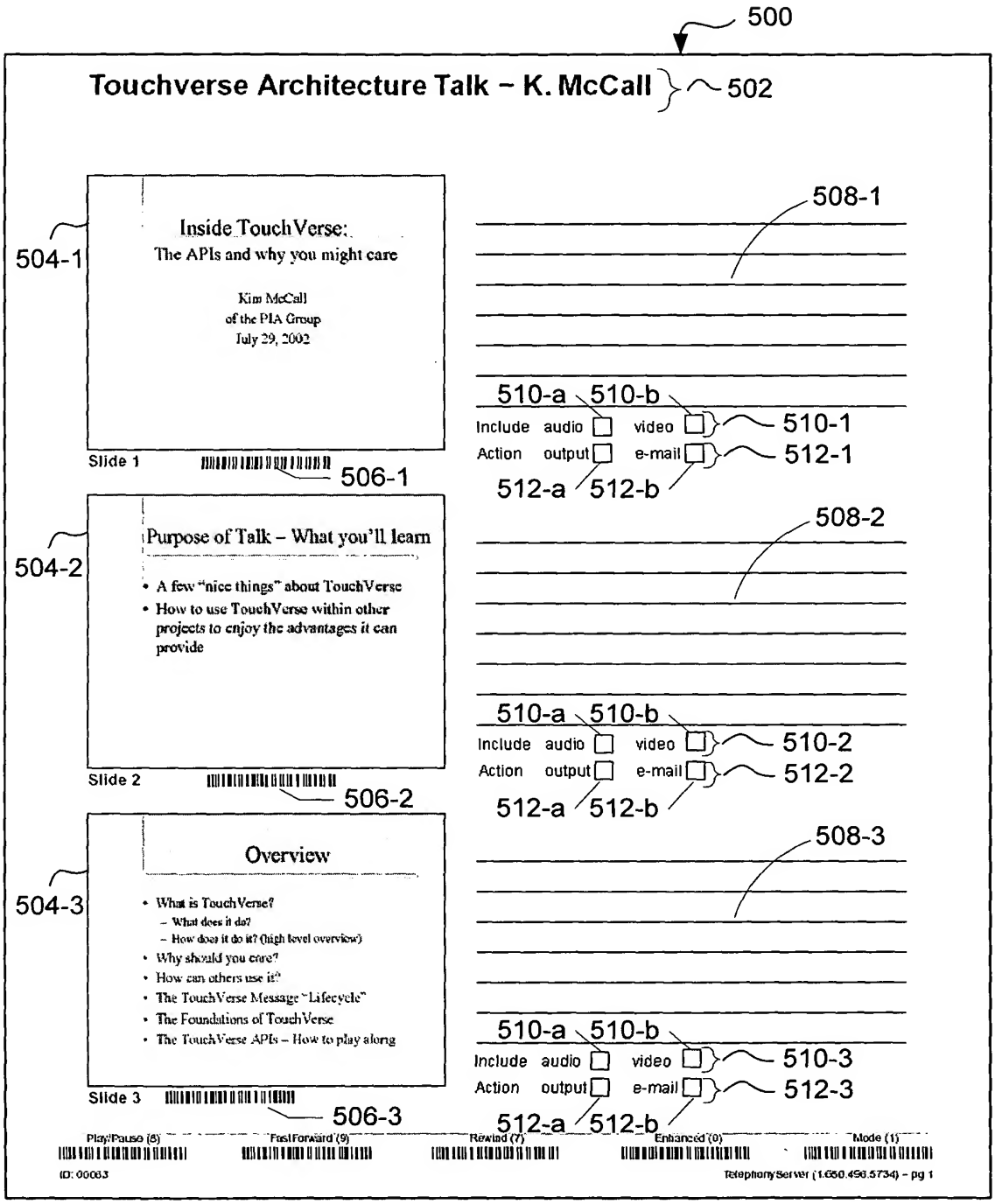
500
Touchverse Architecture Talk – K. McCall
502
504-1
Inside TouchVerse:
The APIs and why you might care
Kim McCall
of the PIA Group
July 29, 2002
Slide 1
506-1
508-1
510-a
510-b
Include audio
video
510-1
Action output
e-mail
512-1
512-a
512-b
504-2
Purpose of Talk – What you'll learn
• A few "nice things" about TouchVerse
• How to use TouchVerse within other projects to enjoy the advantages it can provide
Slide 2
506-2
508-2
510-a
510-b
Include audio
video
510-2
Action output
e-mail
512-2
512-a
512-b
504-3
Overview
• What is TouchVerse?
– What does it do?
– How does it do it? (high level overview)
• Why should you care?
• How can others use it?
• The TouchVerse Message "Lifecycle"
• The Foundations of TouchVerse
• The TouchVerse APIs – How to play along
Slide 3
506-3
508-3
510-a
510-b
Include audio
video
510-3
Action output
e-mail
512-3
512-a
512-b
Play/Pause (5)
Fast Forward (9)
Rewind (7)
Enhanced (0)
Mode (1)
ID: 00083
TelephonyServer (1.650.456.5734) – pg 1

FIG. 5A

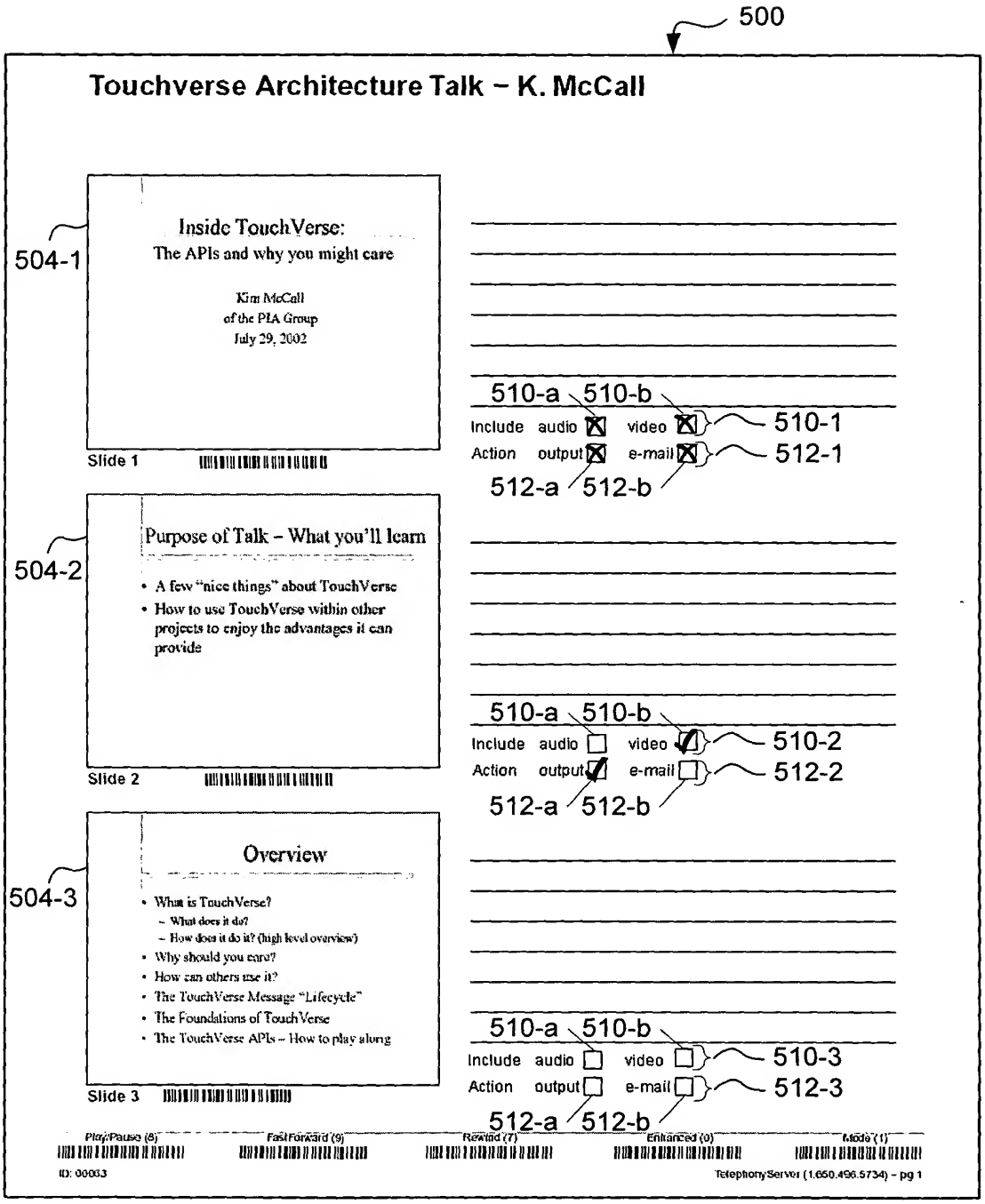
500
Touchverse Architecture Talk – K. McCall
504-1
Inside TouchVerse:
The APIs and why you might care
Kim McCall
of the PIA Group
July 29, 2002
Slide 1
504-2
Purpose of Talk – What you'll learn
• A few "nice things" about TouchVerse
• How to use TouchVerse within other projects to enjoy the advantages it can provide
Slide 2
504-3
Overview
• What is TouchVerse?
– What does it do?
– How does it do it? (high level overview)
• Why should you care?
• How can others use it?
• The TouchVerse Message "Lifecycle"
• The Foundations of TouchVerse
• The TouchVerse APIs – How to play along
Slide 3
510-a
510-b
Include audio
video
510-1
Action output
e-mail
512-1
512-a
512-b
510-2
512-2
510-3
512-3
Play/Pause (5)
Fast Forward (9)
Rewind (7)
Enhanced (0)
Mode (1)
ID: 00053
Telephony Server (1.650.496.5734) – pg 1

FIG. 5B

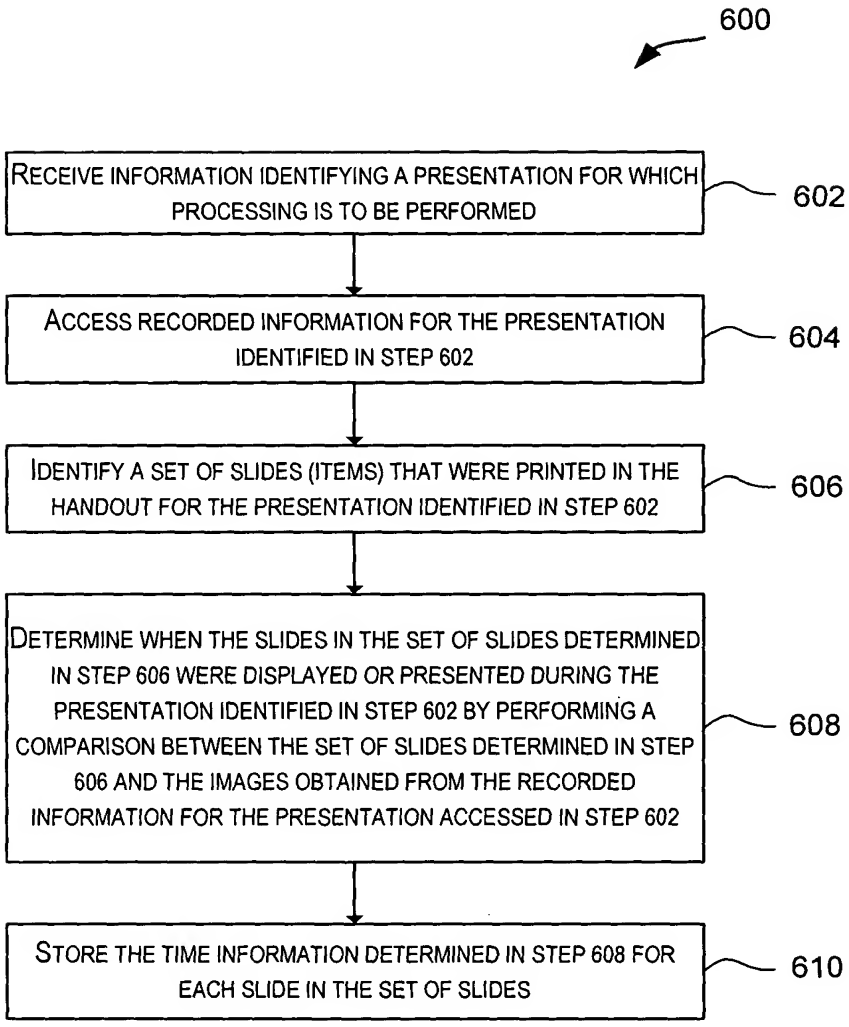
600
RECEIVE INFORMATION IDENTIFYING A PRESENTATION FOR WHICH PROCESSING IS TO BE PERFORMED
602
ACCESS RECORDED INFORMATION FOR THE PRESENTATION IDENTIFIED IN STEP 602
604
IDENTIFY A SET OF SLIDES (ITEMS) THAT WERE PRINTED IN THE HANDOUT FOR THE PRESENTATION IDENTIFIED IN STEP 602
606
DETERMINE WHEN THE SLIDES IN THE SET OF SLIDES DETERMINED IN STEP 606 WERE DISPLAYED OR PRESENTED DURING THE PRESENTATION IDENTIFIED IN STEP 602 BY PERFORMING A COMPARISON BETWEEN THE SET OF SLIDES DETERMINED IN STEP 606 AND THE IMAGES OBTAINED FROM THE RECORDED INFORMATION FOR THE PRESENTATION ACCESSED IN STEP 602
608
STORE THE TIME INFORMATION DETERMINED IN STEP 608 FOR EACH SLIDE IN THE SET OF SLIDES
610

FIG. 6

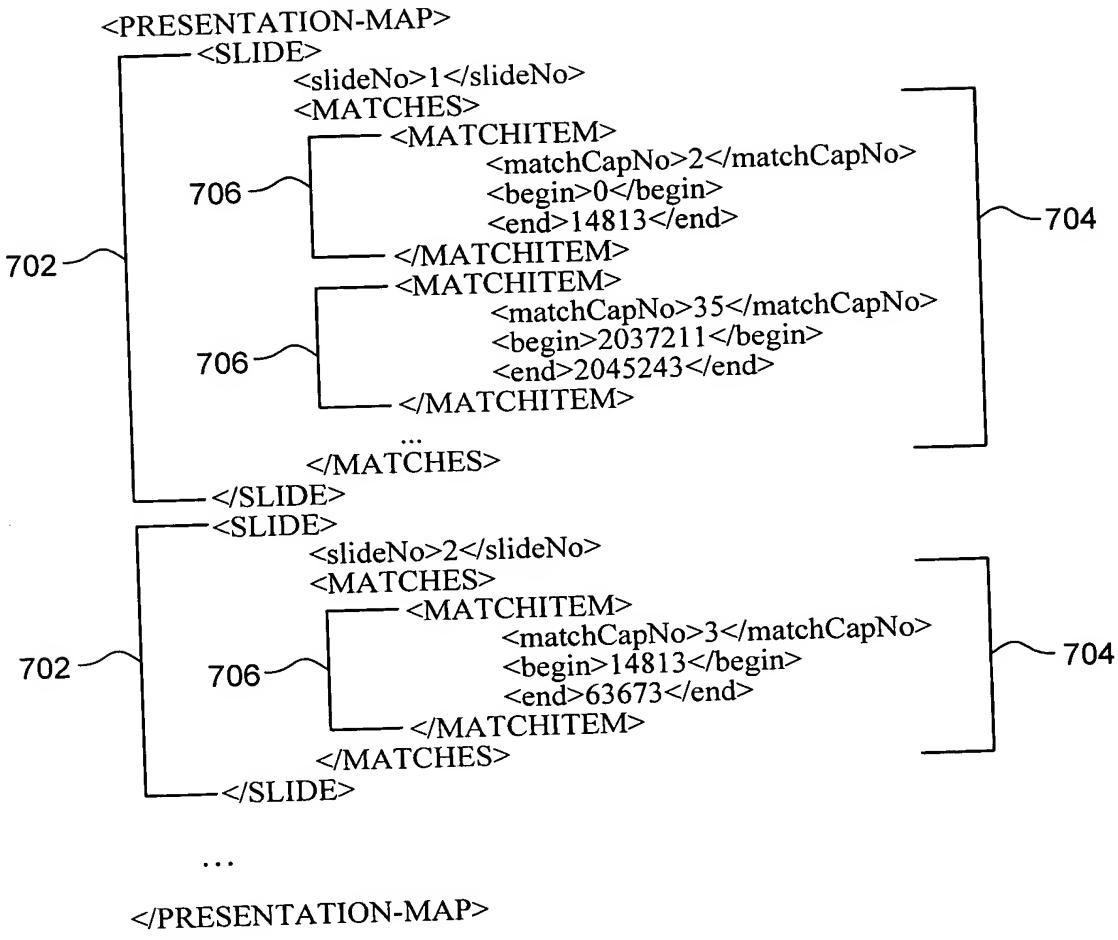
<PRESENTATION-MAP>
<SLIDE>
<slideNo>1</slideNo>
<MATCHES>
<MATCHITEM>
<matchCapNo>2</matchCapNo>
<begin>0</begin>
<end>14813</end>
</MATCHITEM>
<MATCHITEM>
<matchCapNo>35</matchCapNo>
<begin>2037211</begin>
<end>2045243</end>
</MATCHITEM>
...
</MATCHES>
</SLIDE>
<SLIDE>
<slideNo>2</slideNo>
<MATCHES>
<MATCHITEM>
<matchCapNo>3</matchCapNo>
<begin>14813</begin>
<end>63673</end>
</MATCHITEM>
</MATCHES>
</SLIDE>
...
</PRESENTATION-MAP>
702
706
704

FIG. 7A

```
<PRESENTATION-MAP>
    <SLIDE>
        <slideNo>1</slideNo>
        <MATCHES>
            <MATCHITEM type="audio" source="rtsp://somewhere.com/audio.rm">
                <matchCapNo>2</matchCapNo>
                <begin>0</begin>
                <end>14813</end>
            </MATCHITEM>
            <MATCHITEM type="video" source="rtsp://somewhere.com /video.rm">
                <matchCapNo>35</matchCapNo>
                <begin>2037211</begin>
                <end>2045243</end>
            </MATCHITEM>
            ...
        </MATCHES>
    </SLIDE>
...
</PRESENTATION-MAP>
```

FIG. 7B

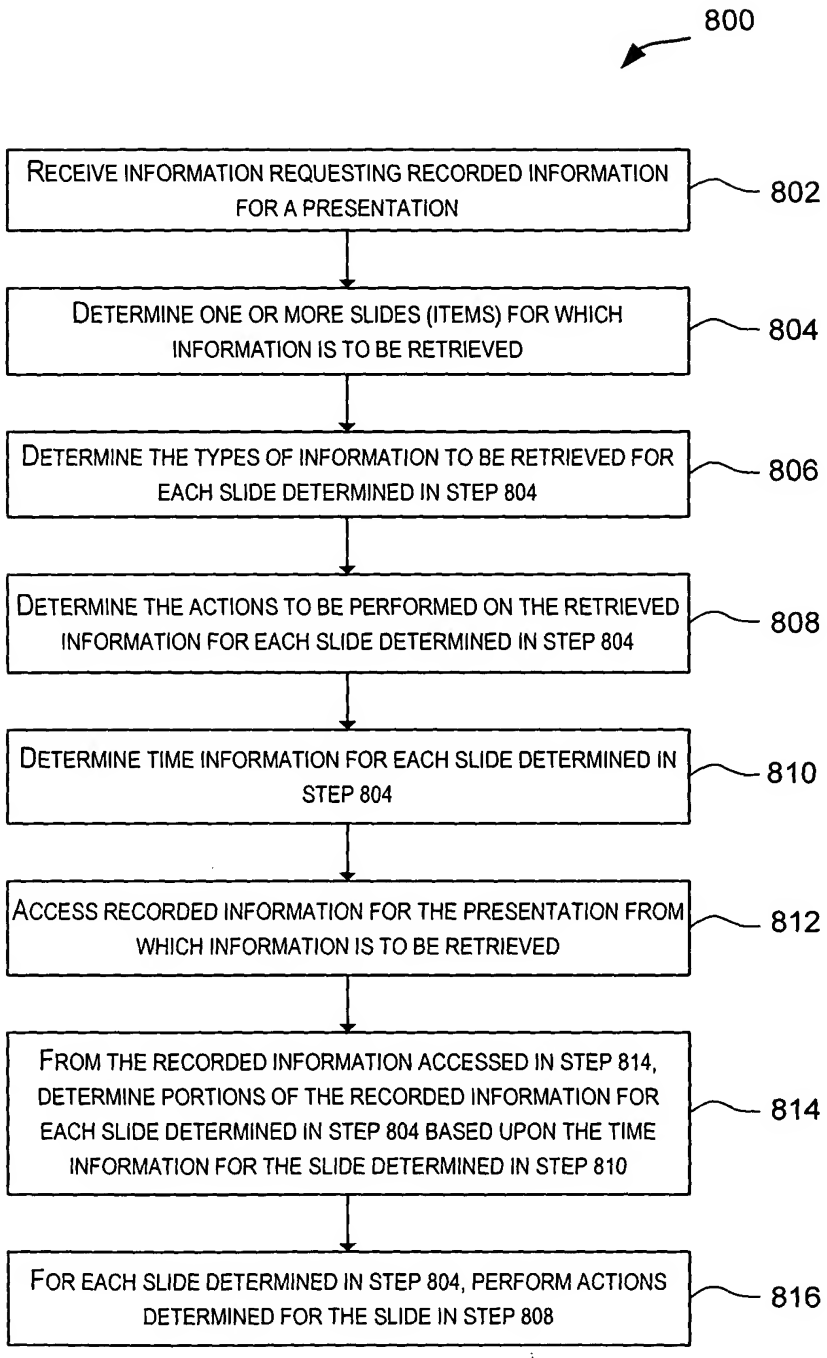
800
RECEIVE INFORMATION REQUESTING RECORDED INFORMATION FOR A PRESENTATION
802
DETERMINE ONE OR MORE SLIDES (ITEMS) FOR WHICH INFORMATION IS TO BE RETRIEVED
804
DETERMINE THE TYPES OF INFORMATION TO BE RETRIEVED FOR EACH SLIDE DETERMINED IN STEP 804
806
DETERMINE THE ACTIONS TO BE PERFORMED ON THE RETRIEVED INFORMATION FOR EACH SLIDE DETERMINED IN STEP 804
808
DETERMINE TIME INFORMATION FOR EACH SLIDE DETERMINED IN STEP 804
810
ACCESS RECORDED INFORMATION FOR THE PRESENTATION FROM WHICH INFORMATION IS TO BE RETRIEVED
812
FROM THE RECORDED INFORMATION ACCESSED IN STEP 814, DETERMINE PORTIONS OF THE RECORDED INFORMATION FOR EACH SLIDE DETERMINED IN STEP 804 BASED UPON THE TIME INFORMATION FOR THE SLIDE DETERMINED IN STEP 810
814
FOR EACH SLIDE DETERMINED IN STEP 804, PERFORM ACTIONS DETERMINED FOR THE SLIDE IN STEP 808
816

FIG. 8

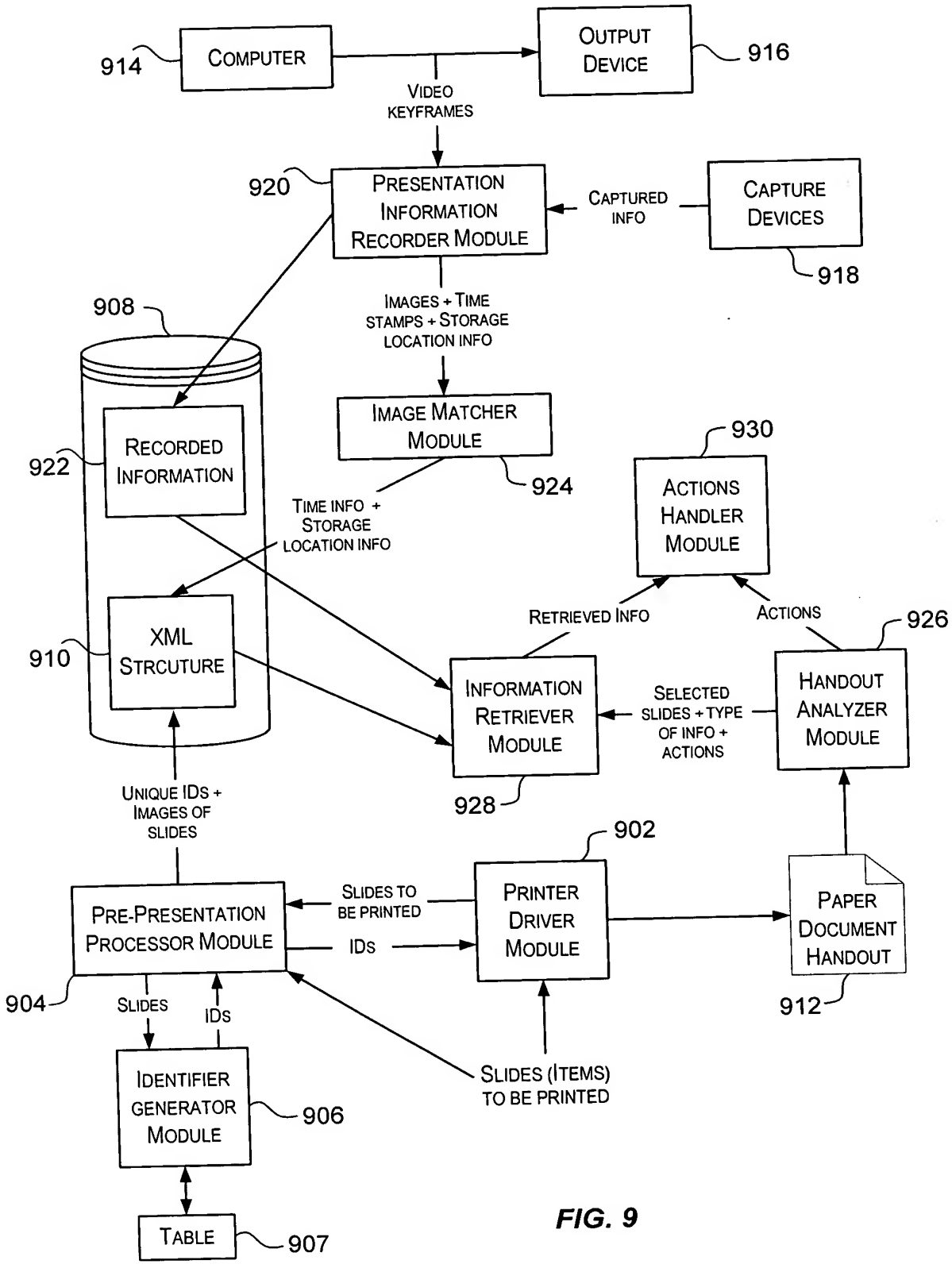
914
COMPUTER
OUTPUT DEVICE
916
VIDEO KEYFRAMES
920
PRESENTATION INFORMATION RECORDER MODULE
CAPTURED INFO
CAPTURE DEVICES
918
908
IMAGES + TIME STAMPS + STORAGE LOCATION INFO
IMAGE MATCHER MODULE
924
930
922
RECORDED INFORMATION
ACTIONS HANDLER MODULE
TIME INFO + STORAGE LOCATION INFO
910
XML STRCUTURE
RETRIEVED INFO
ACTIONS
926
INFORMATION RETRIEVER MODULE
SELECTED SLIDES + TYPE OF INFO + ACTIONS
HANDOUT ANALYZER MODULE
928
UNIQUE IDs + IMAGES OF SLIDES
902
PRE-PRESENTATION PROCESSOR MODULE
SLIDES TO BE PRINTED
IDs
PRINTER DRIVER MODULE
PAPER DOCUMENT HANDOUT
904
SLIDES
IDs
912
IDENTIFIER GENERATOR MODULE
906
SLIDES (ITEMS) TO BE PRINTED
TABLE
907

FIG. 9

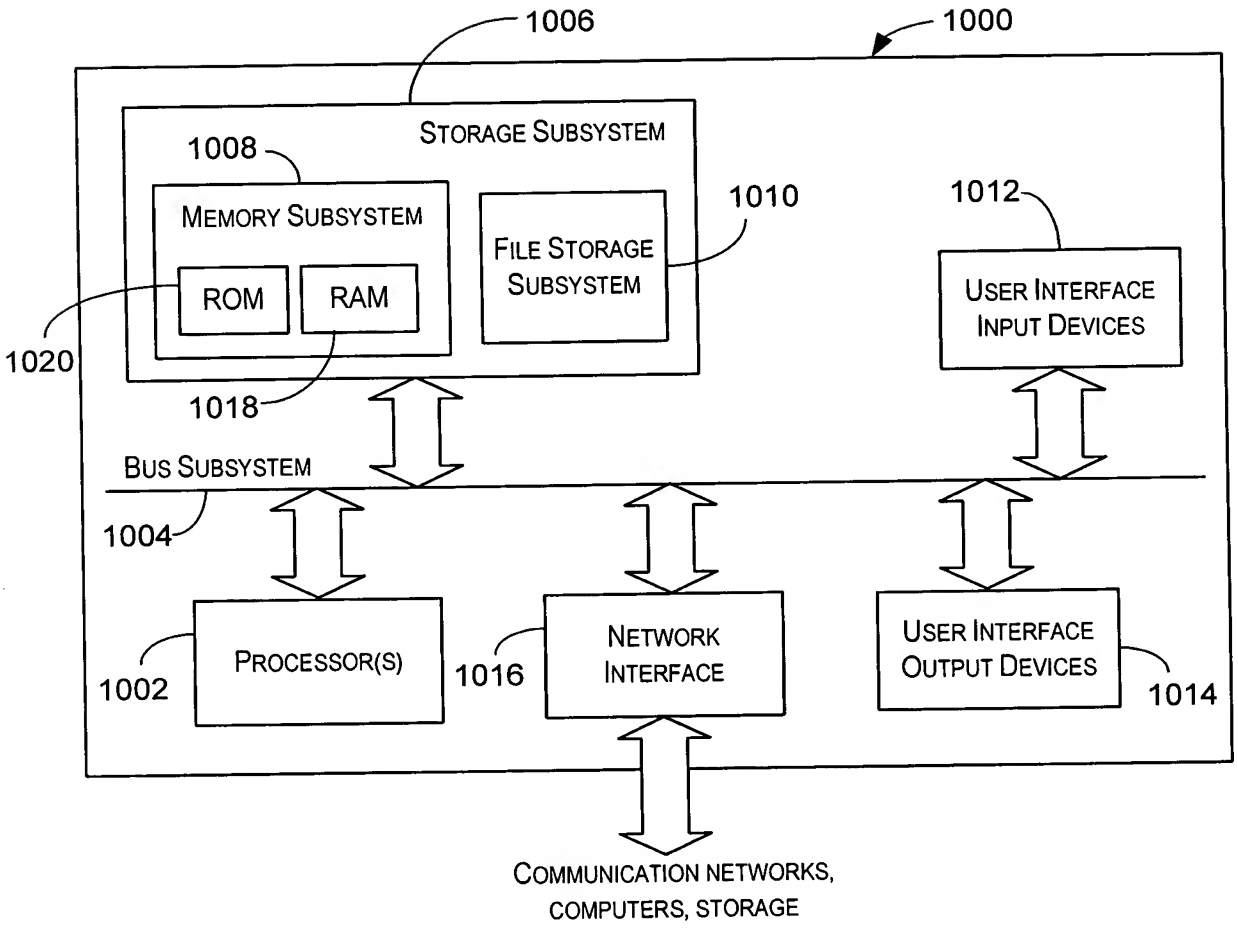
1006
1000
STORAGE SUBSYSTEM
1008
MEMORY SUBSYSTEM
ROM
RAM
1020
1018
FILE STORAGE SUBSYSTEM
1010
1012
USER INTERFACE INPUT DEVICES
BUS SUBSYSTEM
1004
PROCESSOR(S)
1002
NETWORK INTERFACE
1016
USER INTERFACE OUTPUT DEVICES
1014
COMMUNICATION NETWORKS, COMPUTERS, STORAGE

FIG. 10